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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/859,501	05/18/2001	Yoshihisa Soeda	208707US-2	5037
22850	7590	01/11/2005	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			THOMPSON, JAMES A	
			ART UNIT	PAPER NUMBER

2624

DATE MAILED: 01/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/859,501

Applicant(s)

SOEDA ET AL.

Examiner

James A Thompson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 May 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 7-14 and 17-20 is/are rejected.
- 7) ☒ Claim(s) 5-8 and 15-18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 May 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of the disclosure is objected to because the abstract is written in legal claim language. As noted above, the abstract should be written in narrative form. Correction is required. See MPEP § 608.01(b).

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Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 7, 8, 17 and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 7, 8, 17 and 18 recite "a microcomputer multiplying ... data; and dividing the result ...". Does Applicant mean that said microcomputer further performs the step of dividing, or has Applicant simply failed to recite a particular means with which the step of dividing is to be performed? The language of the claims as currently written does not make this clear.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-2 and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamura (US Patent 5,943,141) in view of Ito (US Patent 5,442,464).

Regarding claims 1 and 11: Tamura discloses an image reading device (figure 1 of Tamura) comprising a photoelectric

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device (figure 1(3) of Tamura) provided with an empty transfer part (figure 1(34) and column 4, lines 61-63 of Tamura); an A-D converter (figure 1(5(portion)) of Tamura) performing A-D conversion on an output signal for each pixel of said photoelectric device (column 5, lines 1-2 of Tamura); and a reference voltage varying part (figure 1(5(portion)) of Tamura) varying a reference voltage of said A-D converter (column 5, lines 2-7 of Tamura). The A/D converter (figure 1(5) of Tamura) disclosed by Tamura clearly has two distinct part, which would be embodied in two distinct areas of circuitry, as demonstrated by the two distinct functions that are performed. One part performs the essential analog-to-digital conversion (column 5, lines 1-2 of Tamura). The second part performs the varying of the reference voltage so that the highest reference voltage corresponds to the white reference data and the lowest reference voltage corresponds to the black reference data (column 5, lines 2-7 of Tamura).

Tamura further discloses a detecting part (figure 1(6) of Tamura) detecting a black correction reference data from output for each pixel of said photoelectric device (column 5, lines 21-27 of Tamura).

Tamura does not disclose expressly a black shading correcting part subtracting the black correction reference data from digital image data obtained from the output signal for each pixel of said photoelectric device when an image is read, through said A-D converter having the reference voltage set therein; and a correcting part correcting the black correction reference data by a ratio between an output level of said empty transfer part obtained through said A-D converter when the black correction reference data is detected and an output level of

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said empty transfer part obtained through said A-D converter when the image is read.

Ito discloses a black shading correcting part (figure 2 (206) of Ito) subtracting the black correction reference data from digital image data obtained from the output signal for each pixel of said photoelectric device when an image is read (column 9, lines 5-11 and column 3, lines 55-57 of Ito), through said A-D converter having the reference voltage set therein (column 14, lines 3-9 of Ito); and a correcting part (figure 2(204) of Ito) correcting the black correction reference data by a ratio (column 19, equation 4 of Ito) between an output level of said empty transfer part obtained through said A-D converter when the black correction reference data is detected (illuminance-ratio in tube-temperature T_0) and an output level of said empty transfer part obtained through said A-D converter when the image is read (illuminance-ratio in tube-temperature T) (column 18, lines 57-67 and column 19, lines 5-9 of Ito). The gain (column 19, equation 4 of Ito) based on the "dark" temperature (figure 13(T_0) of Ito) and the temperature of the light source after said light source is turned on (column 18, lines 57-67 of Ito) is used to update the black reference data (dark-state-output) (column 19, lines 3-9 of Ito).

Tamura and Ito are combinable because they are from the same field of endeavor, namely correction of digital image scanning data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use said black shading correcting part and said correcting part taught by Tamura in the correction of the image data and the black correction reference data. The motivation for doing so would have been to prevent the interference of dark-state-output data

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on the overall scanner signal, thus preventing degradation of the resultant image signal (column 2, lines 6-16 of Ito). Therefore, it would have been obvious to combine Ito with Tamura to obtain the invention as specified in claims 1 and 11.

Regarding claims 2 and 12: Tamura discloses an image reading device (figure 1 of Tamura) comprising a photoelectric device (figure 1(3) and column 4, lines 57-60 of Tamura); and an empty transfer part output generating part (figure 1(4) of Tamura) falsely generating an output of empty transfer part (figure 1(34) of Tamura) of said photoelectric device by outputting a predetermined voltage in predetermined timing (column 4, lines 61-67 of Tamura). Said empty transfer part output generating part is a CCD line sensor, which inherently outputs a predetermined voltage, namely the black reference data read by said CCD, in predetermined timing, namely a timing corresponding to the line-by-line reading of the document data by said photoelectric device.

Tamura further discloses an A-D converter (figure 1(5 (portion)) of Tamura) performing A-D conversion on an output signal for each pixel of said photoelectric device (column 5, lines 1-2 of Tamura); and a reference voltage varying part (figure 1(5(portion)) of Tamura) varying a reference voltage of said A-D converter (column 5, lines 2-7 of Tamura). The A/D converter (figure 1(5) of Tamura) disclosed by Tamura clearly has two distinct part, which would be embodied in two distinct areas of circuitry, as demonstrated by the two distinct functions that are performed. One part performs the essential analog-to-digital conversion (column 5, lines 1-2 of Tamura). The second part performs the varying of the reference voltage so that the highest reference voltage corresponds to the white

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reference data and the lowest reference voltage corresponds to the black reference data (column 5, lines 2-7 of Tamura).

Tamura further discloses a detecting part (figure 1(6) of Tamura) detecting a black correction reference data from output for each pixel of said photoelectric device (column 5, lines 21-27 of Tamura).

Tamura does not disclose expressly a black shading correcting part subtracting the black correction reference data from digital image data obtained from the output signal for each pixel of said photoelectric device when an image is read, through said A-D converter having the reference voltage set therein; and a correcting part correcting the black correction reference data by a ratio between an output level of said empty transfer part output generating part obtained through said A-D converter when the black correction reference data is detected and an output level of said empty transfer part output generating part obtained through said A-D converter when the image is read.

Ito discloses a black shading correcting part (figure 2 (206) of Ito) subtracting the black correction reference data from digital image data obtained from the output signal for each pixel of said photoelectric device when an image is read (column 9, lines 5-11 and column 3, lines 55-57 of Ito), through said A-D converter having the reference voltage set therein (column 14, lines 3-9 of Ito); and a correcting part (figure 2(204) of Ito) correcting the black correction reference data by a ratio (column 19, equation 4 of Ito) between an output level of said empty transfer part output generating part obtained through said A-D converter when the black correction reference data is detected (illuminance-ratio in tube-temperature T_0) and an output

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level of said empty transfer part output generating part obtained through said A-D converter when the image is read (illuminance-ratio in tube-temperature T) (column 18, lines 57-67 and column 19, lines 5-9 of Ito). The gain (column 19, equation 4 of Ito) based on the "dark" temperature (figure 13(T_0) of Ito) and the temperature of the light source after said light source is turned on (column 18, lines 57-67 of Ito) is used to update the black reference data (dark-state-output) (column 19, lines 3-9 of Ito).

Tamura and Ito are combinable because they are from the same field of endeavor, namely correction of digital image scanning data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use said black shading correcting part and said correcting part taught by Tamura in the correction of the image data and the black correction reference data. The motivation for doing so would have been to prevent the interference of dark-state-output data on the overall scanner signal, thus preventing degradation of the resultant image signal (column 2, lines 6-16 of Ito). Therefore, it would have been obvious to combine Ito with Tamura to obtain the invention as specified in claims 2 and 12.

7. Claims 3-4 and 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamura (US Patent 5,943,141) in view of Ito (US Patent 5,442,464) and Barron (US Patent 5,659,355).

Regarding claims 3, 4, 13 and 14: Tamura discloses that said photoelectric device comprises a contact-type sensor (figure 1(4(portion)) and column 4, lines 65-67 of Tamura) which receives reflected light from an original through an optical system (figure 1(33) and column 4, lines 57-60 of Tamura). The

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plurality of individual Charge Couple Devices (column 4, lines 65-67 of Tamura) comprise the portion of the CCD line sensor that directly receives the reflected light (column 4, lines 57-60 of Tamura).

Tamura in view of Ito does not disclose expressly that said contact-type sensor and said optical system are both unity magnification.

Barron discloses that the closed-loop gain of the entire imaging system (figure 2 of Barron) should be set at exactly a unity gain (column 3, lines 24-29 of Barron).

Tamura in view of Ito is combinable with Barron because they are from the same field of endeavor, namely digital image data processing for scanners. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to maintain a unity gain, as taught by Barron, by ensuring that the contact-type sensor and the optical system taught by Tamura are kept at a unity gain. The motivation for doing so would have been that a unity gain is necessary to calibrate the system (column 3, lines 24-27 and lines 34-38 of Barron). Therefore, it would have been obvious to combine Barron with Tamura in view of Ito to obtain the invention as specified in claims 3, 4, 13 and 14.

8. Claims 9-10 and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamura (US Patent 5,943,141) in view of Ito (US Patent 5,442,464) and Shigeeda (US Patent 5,900,948).

Regarding claims 9 and 19: The arguments regarding claims 1 and 11 are incorporated herein.

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Tamura in view of Ito does not disclose expressly an image forming device forming an image on a sheet based on the image data read by said image reading device.

Shigeeda discloses an image forming device (figure 1(15) of Shigeeda) forming an image on a sheet based on the image data read by an image reading device (column 6, lines 33-35 of Shigeeda).

Tamura in view of Ito is combinable with Shigeeda because they are from the same field of endeavor, namely digital image data processing for scanners. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to output the resultant image data processed by the device of Tamura in view of Ito to an image forming device, as taught by Shigeeda. The motivation for doing so would have been that said image forming device provides a hard copy of the processed image (column 7, lines 1-4 of Shigeeda). Therefore, it would have been obvious to combine Shigeeda with Tamura in view of Ito to obtain the invention as specified in claims 9 and 19.

Regarding claims 10 and 20: The arguments regarding claims 2 and 12 are incorporated herein.

Tamura in view of Ito does not disclose expressly an image forming device forming an image on a sheet based on the image data read by said image reading device.

Shigeeda discloses an image forming device (figure 1(15) of Shigeeda) forming an image on a sheet based on the image data read by an image reading device (column 6, lines 33-35 of Shigeeda).

Tamura in view of Ito is combinable with Shigeeda because they are from the same field of endeavor, namely digital image data processing for scanners. At the time of the invention, it

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would have been obvious to a person of ordinary skill in the art to output the resultant image data processed by the device of Tamura in view of Ito to an image forming device, as taught by Shigeeda. The motivation for doing so would have been that said image forming device provides a hard copy of the processed image (column 7, lines 1-4 of Shigeeda). Therefore, it would have been obvious to combine Shigeeda with Tamura in view of Ito to obtain the invention as specified in claims 10 and 20.

Allowable Subject Matter

9. Claims 5-6 and 15-16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. Claims 7-8 and 17-18 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

11. The following is a statement of reasons for the indication of allowable subject matter:

Examiner has been unable to find in the prior art an image reading device which performs black shading correction by (1) calculating a first sum of output levels of said empty transfer part for predetermined pixels obtained when the black correction reference data is detected, (2) calculating a second sum of output levels of said empty transfer part for the predetermined pixels obtained when the image is read, (3) multiplying the second sum with the black correction reference data, and (4)

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dividing the result of multiplication by the first sum and outputting the result of the division as the black correction reference data after the correction. Steps (1)-(4) are performed by the various circuits, means, etc. specifically recited in claims 5-8 and claims 15-18.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hyang-Su Oh, US Patent 6,665,096 B1, 16 December 2003.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A Thompson whose telephone number is 703-305-6329. The examiner can normally be reached on 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David K Moore can be reached on 703-308-7452. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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James A. Thompson
Examiner
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JAT
29 December 2004

A handwritten signature in black ink, appearing to read "Thomas D. Lee", with a stylized, cursive script.

THOMAS D.
~~THOMAS~~ LEE
PRIMARY EXAMINER